REMARKS

Claims 2-9, 32-36 and 64-82 are pending in the present application. Claims 2, 3, 7, 64 and 65 have been amended, and new claims 66-82 have been added in this response. More specifically, claims 2 and 3 have been rewritten in independent form without narrowing the scope of these claims.

In the Office Action mailed December 14, 2004, claims 4-9, 64 and 65 were rejected. More specifically, the status of the claims in light of this Office Action is as follows:

(A) Claims 7 and 9 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,335,571 to Capote et al. ("Capote");

(C) Claims 64 and 65 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,723,900 to Kojima et al. ("Kojima");

(D) Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Capote;

(E) Claims 4-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Capote and Kojima;

(F) Claims 2 and 3 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form to include the features of the claim from which they depend; and

(G) Claims 32-36 were allowed.

A. Response to the Section 102(e) Rejection Over Capote

Claims 7 and 9 were rejected under 35 U.S.C. § 102(e) as being anticipated by Capote. As described below, the rejection of claims 7 and 9 should be withdrawn because Capote does not disclose or suggest all of the features of these claims.

1. Claim 7 is Directed to a Method of Packaging a Substrate Including Molding an Encapsulating Material onto the Substrate

Claim 7 is directed to a method for packaging a microelectronic substrate, including molding an encapsulating material onto the substrate. The method further includes exposing at least a portion of a surface of the microelectronic substrate by removing a portion of the encapsulating material with the substrate in an operable

condition after the portion of the encapsulating material is removed. Removing a portion of the encapsulating material includes directing laser radiation toward the encapsulating material. An advantage of the method in accordance with claim 1 is that removing a portion of the encapsulating material allows heat to be more effectively and efficiently removed from the microelectronic substrate.

2. Capote Discloses a Method for Fabricating a Flip-Chip Device Including Depositing a Layer of Underfill Encapsulant onto a Surface of a Chip

Capote discloses a method of fabricating a flip-chip device. The method includes depositing an underfill encapsulant onto a surface of a semiconductor chip, forming openings in the underfill encapsulant over corresponding pads on the chip, and filling the openings with solder to form solder bumps on the chip. The method further includes depositing a different underfill encapsulant onto a surface of a substrate, and attaching the chip to the substrate such that the two layers of underfill encapsulant are disposed between the chip and substrate.

3. Capote Fails to Disclose a Method of Packaging a Substrate Including Molding an Encapsulating Material onto the Substrate

Capote fails to disclose a method of packaging a microelectronic substrate including, *inter alia*, "molding an encapsulating material onto the microelectronic substrate," as recited in claim 7. To the contrary, Capote discloses depositing an underfill encapsulant onto a single surface of a semiconductor chip. Consequently, Capote fails to disclose each and every element of claim 7. Therefore, the Section 102(e) rejection of claim 7 should be withdrawn.

Claim 9 depends from claim 7. Accordingly, the Section 102(e) rejection of claim 9 should be withdrawn for the reasons discussed above with reference to claim 7 and for the additional features of this claim.

B. Response to the Section 102(b) Rejection Over Kojima

Claims 64 and 65 were rejected under 35 U.S.C. § 102(b) as being anticipated by Kojima. As described below, the rejection of claims 64 and 65 should be withdrawn because Kojima does not disclose or suggest all the features of these claims.

1. Claim 64 Is Directed to a Method for Packaging a Microelectronic Substrate

Claim 64 is directed to a method for packaging a substrate, including mounting the microelectronic substrate to a dielectric support member with a first surface of the microelectronic substrate facing the dielectric support member and a second surface of the microelectronic substrate facing opposite the first surface. The method further includes electrically coupling the microelectronic substrate to the dielectric support member by passing wire bonds through an aperture in the support member and connecting one end of the individual wire bonds to the support member and an opposite end of the individual wire bonds to the microelectronic substrate. The method further includes disposing an encapsulating material over the second surface of the microelectronic substrate and at least a portion of the support member, and exposing at least a portion of the second surface of the microelectronic substrate by removing a portion of the encapsulating material adjacent to the second surface.

2. Kojima Discloses a Method for Forming a Thin Semiconductor Device Including Attaching a Semiconductor Chip to an Electrically Conductive Lead Frame

Kojima discloses a method for forming a thin, molded semiconductor device. First, a semiconductor chip 13 is coupled to an electrically conductive lead frame 12. The lead frame 12 includes a plurality of electrically conductive inner leads 16 and a plurality of electrically conductive outer leads 15A. Next, the semiconductor chip 13 and the inner leads 16 are encapsulated with a resin 14 (Kojima, Figure 4H). "After molding with the resin 14, a rear surface 13a of the semiconductor chip 13 is ground so as to be flush with the upper surface of the outer lead 15." (Kojima, col. 3, ll. 59-61; Figure 4I.)

3. Kojima Fails to Disclose a Method for Packaging a Substrate Including Mounting a Substrate to a Dielectric Support Member and Wire Bonding the Support Member to the Substrate

Kojima fails to disclose a method of packaging a microelectronic substrate including, *inter alia*, "mounting the microelectronic substrate to a dielectric support member," and "electrically coupling the microelectronic substrate to the dielectric support member by passing wire bonds through an aperture in the support member and connecting one end of the individual wire bonds to the support member and an opposite end of the individual wire bonds to the microelectronic substrate," as recited in claim 64. To the contrary, Kojima discloses mounting a semiconductor chip 13 to an electrically conductive lead frame 12. The lead frame 12 includes electrically conductive outer leads 15A and electrically conductive inner leads 16. Consequently, Kojima's chip is not mounted to a dielectric support member as required by claim 64. Moreover, Kojima's chip 13 is not wire bonded to the lead frame 12. To the contrary, a plurality of bumps 17 are formed on corresponding inner leads 16 and attached to the electrode pads 18 on the surface of Kojima's semiconductor chip 13. Consequently, Kojima fails to disclose each and every element of claim 64. Therefore, the Section 102(b) rejection of claim 64 should be withdrawn.

Independent claim 65 has, *inter alia*, features generally similar to those included in claim 64. For example, claim 65 recites "electrically coupling the microelectronic substrate to the support member by passing wire bonds through an aperture in the support member and connecting one end of the individual wire bonds to the support member and an opposite end of the individual wire bonds to the microelectronic substrate." Consequently, the Section 102(b) rejection of claim 65 should be withdrawn for the reasons discussed above with reference to claim 64 and for the additional features of claim 65.

C. Response to the Section 103(a) Rejection Over Capote

Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Capote. Claim 8 depends from claim 7. Accordingly, the Section 103(a) rejection of claim 8 should be withdrawn for the reasons discussed above with reference to claim 7 and for the additional features of this claim.

D. Response to the Section 103(a) Rejection Over Capote and Kojima

Claims 4-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Capote in view of Kojima. Claims 4-6 depend from claim 7. Consequently, claims 4-6 are patentable over Capote for the reasons discussed above with reference to claim 7 and for the additional features of these claims. Kojima fails to provide a motivation for modifying Capote's method to mold the encapsulating underfill layer onto the semiconductor chip. Accordingly, the Section 103(a) rejection of claims 4-6 should be withdrawn.

E. Response to the Objection to Claims 2 and 3

Claims 2 and 3 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form to include the features of the claim from which they depend. Claims 2 and 3 have been amended accordingly. Consequently, the objection to claims 2 and 3 should be withdrawn.

F. Allowed Claims 32-36

Although the applicant's attorney agrees with the Examiner's conclusion that these claims are allowable, the applicant's attorney notes that the claims may be allowable for reasons other than those identified by the Examiner and does not concede that the Examiner's characterization of the terms of the claims and the prior art are correct.

G. New Claims 66-82

Claims 66-70 depend from claim 64. Accordingly, new claims 66-70 are patentable over the cited references for the reasons discussed above with reference to claim 64 and for the additional features of these claims.

New claims 71-75 depend from claim 65. Accordingly, new claims 71-75 are patentable over the cited references for the reasons discussed above with reference to claim 65 and for the additional features of these claims.

New independent claim 76 has, *inter alia*, features generally similar to those included in claim 7. Accordingly, new claim 76 is patentable over the cited references

for the reasons discussed above with reference to claim 7 and for the additional features of this claim.

New claims 77-82 depend from claim 76. Accordingly, new claims 77-82 are patentable over the cited references for the reasons discussed above with reference to claim 76 and for the additional features of these claims.

H. Conclusion

In light of the foregoing amendments and remarks, all of the pending claims are in condition for allowance. Applicant, therefore, requests reconsideration of the application and an allowance of all pending claims. If the Examiner wishes to discuss the above-noted distinctions between the claims and the cited references or any other distinctions, the Examiner is encouraged to contact David Dutcher by telephone. Additionally, if the Examiner notices any informalities in the claims, he is also encouraged to contact David Dutcher to expediently correct any such informalities.

Respectfully submitted,
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